



**SLOVENSKI STANDARD**  
**oSIST prEN 17702-1:2023**  
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**Rastlinski biostimulanti - Vzorčenje in priprava vzorcev - 1. del: Vzorčenje**

Plant biostimulants - Sampling and sample preparation - Part 1: Sampling

Pflanzen-Biostimulanzien - Probenahme und Probenvorbereitung - Teil 1: Probenahme

Biostimulants des végétaux - Échantillonnage et préparation des échantillons - Partie 1 :  
Echantillonnage

**Ta slovenski standard je istoveten z: prEN 17702-1**

**ICS:**

65.080                      Gnojila                                      Fertilizers

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EUROPÄISCHE NORM

**DRAFT**  
**prEN 17702-1**

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English Version

## Plant biostimulants - Sampling and sample preparation - Part 1: Sampling

Biostimulants des végétaux - Échantillonnage et  
préparation des échantillons - Partie 1 :  
Echantillonnage

Pflanzen-Biostimulanzien - Probenahme und  
Probenvorbereitung - Teil 1: Probenahme

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If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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**prEN 17702-1:2023 (E)**

**European foreword**

This document (prEN 17702-1:2023) has been prepared by Technical Committee CEN/TC 455 “Plant biostimulants”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede CEN/TS 17702-1:2022.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association.

The EN 17702 series, *Plant biostimulants — Sampling and sample preparation*, consists of the following parts:

- *Part 1: Sampling;*
- *Part 2: Sample preparation.*

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## Introduction

This document was prepared by the experts of CEN/TC 455 “Plant biostimulants”. The European Committee for Standardization (CEN) was requested by the European Commission (EC) to draft European standards or European standardization deliverables to support the implementation of Regulation (EU) 2019/1009 of 5 June 2019 laying down rules on the making available on the market of EU fertilizing products (“FPR” or “Fertilizing Products Regulation”).

This standardization request, presented as M/564 and M/564/Amd1, also contributes to the Communication on “Innovating for Sustainable Growth: A Bio economy for Europe”. The Working Group 1 “Sampling” was created to develop a work programme as part of this request. The technical committee CEN/TC 455 “Plant biostimulants” was established to carry out the work programme that will prepare a series of standards. The interest in plant biostimulants has increased significantly in Europe as a valuable tool to use in agriculture. Standardization was identified as having an important role in order to promote the use of biostimulants. The work of CEN/TC 455 seeks to improve the reliability of the supply chain, thereby boosting the confidence of farmers, industry, and consumers in plant biostimulants, and will promote and support commercialisation of the European biostimulant industry.

This document covers the following aspects of sampling, derived from EN 1482-1:2007 and documents indicated. This document is presented in a form adapted to the specificity of plant biostimulants. The titles of the standards are given in the Bibliography.

From a technical point of view, sampling is generally defined as the withdrawal operation, of the part of a “mass”, of such dimensions that the properties found in the sample taken, are, within the limits of statistical acceptability, the same as those of the mass of origin (representativeness of the sample). In other words, the ultimate purpose of sampling is to allow the collection of representative portions of plant biostimulants to be subject to analysis. Therefore, it fundamentally affects the significance and reliability of the analytical results themselves.

The final results, must, as far as possible, refer to the state and conditions in which the material was found at the time of collection. Therefore, care must be taken to avoid or minimize possible modifications to the chemical, physical and biological properties of the sample during or after sampling.

In conclusion, for a correct sampling, it is necessary that the sampling and collection of samples take place quickly, if possible, taking necessary precautions to ensure that they are representative of the plant biostimulants to be analysed and that the samples taken are stored in appropriate way. The surfaces, containers and instruments used must be clean and dry.

Furthermore, remember the protection of health and safety in places of work, and that every intervention must be carried out in compliance with the defined prevention and protection measures (including the use of any suitable personal protective equipment (PPE)), in particular a careful reading of the labels on the product and on the safety data sheet if available.

Figure 1 gives a schematic diagram of the sampling and sample preparation process.

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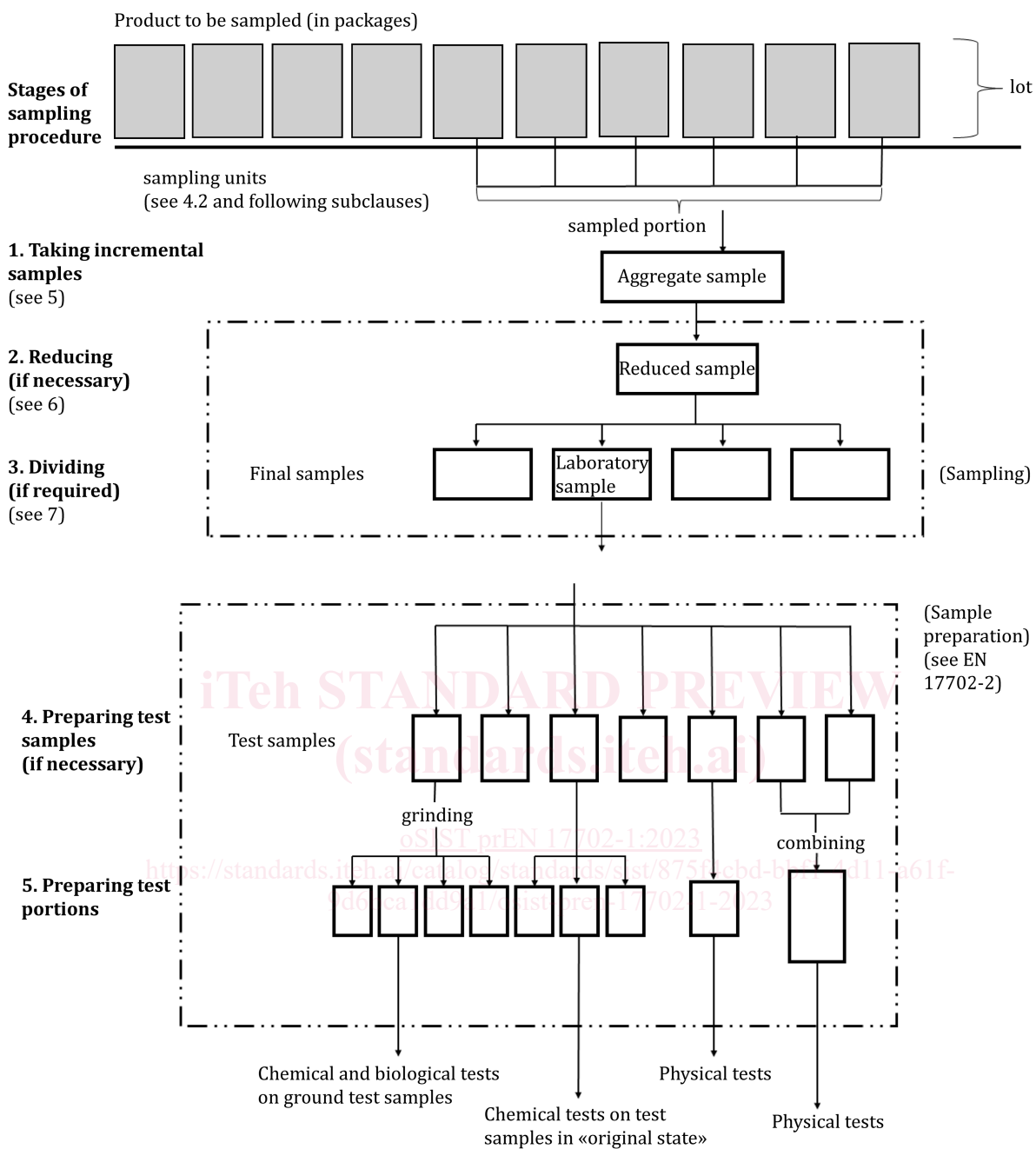


Figure 1 — Schematic diagram of sampling process for solid plant biostimulants



## 1 Scope

This document specifies sampling plans and methods of representative sampling of plant biostimulants to obtain samples for physical, chemical and biological analysis.

It is applicable to the sampling of batches of plant biostimulants supplied or ready for supply to third parties, as such, or in smaller batches.

It is also applicable to the sampling of blends of fertilizing products where plant biostimulants are main part of the blend. Otherwise, deliverables of sampling relevant for the main part of the blend apply.

This document is intended to be used by manufacturers, buyers and competent authorities to obtain samples prior to transport and supply it to a laboratory for testing.

NOTE This document is applicable to the category of EU fertilizing product (plant biostimulants) in the meaning of Regulation (EU) 2019/1009.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1482-1, *Fertilizers and liming materials — Sampling and sample preparation — Part 1: Sampling*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **batch**

#### **lot**

total quantity of material present assumed to have the same characteristics

Note 1 to entry: A batch is produced by the same process at the same time, under the same conditions and labelled in the same manner.

### 3.2

#### **sampled portion**

quantity of material from the same batch from which one representative combined sample is taken

### 3.3

#### **sampling unit**

defined quantity of material having a boundary (e.g. a container)

### 3.4

#### **sampling point**

point from which the incremental sample is taken

### 3.5

#### **incremental sample**

quantity of material taken from one sampling point

### 3.6

#### **combined sample**

combination of all incremental samples taken from one sampled portion

**prEN 17702-1:2023 (E)****3.7****reduction**

process of producing a representative smaller mass of material from a larger mass, with the remainder being discarded

**3.8****reduced sample**

representative part of the combined sample obtained by a process of reduction in such a manner that the mass is at least the mass of the required final samples

**3.9****division**

process of producing a number of representative smaller portions, approximately equal in mass to each other, from a larger mass

**3.10****final sample**

representative part of the combined sample taken from the sampled portion obtained, where necessary, by a process of reduction

**3.11****laboratory sample**

final sample intended for laboratory testing

**3.12****consignment**

quantity of goods dispatched or received at one time and covered by a particular contract or shipping document

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Note 1 to entry: A consignment can be composed of a part of a batch (lot) or one or more batches (lots) of the same material or different materials. [9d6bca1dd9a1/osist-pren-17702-1-2023](#)

**3.13****delivery**

quantity of material transferred at one time

**3.14****package**

container and material contained therein which is ready for delivery or delivered and where the packaging remains with the material after delivery

**4 Sampling plans and quantitative data****4.1 Principle**

The sampling plans given in this document are not based on strict statistical principles, but samples obtained by following the procedures described in this clause shall be considered to be representative of the original batch or the sampled portion.

This clause specifies sampling plans for the evaluation of deliveries of plant biostimulants as well as statutory control plans which shall be followed in certain circumstances.

According to available resources, the plant biostimulants are not supplied in other than packaged form (up to 1 000 kg or 1 000 l). Therefore, this document specifies principles for those cases. Nevertheless, if

plant biostimulants were delivered in larger packages and containers or in bulk, the principles of EN 1482-1 shall be applied accordingly.

The size of batch is unlimited (see Table 2).

For statutory control and the commercial evaluation of plant biostimulants, one final sample is sufficient, but this may subsequently be divided into a number of identical samples.

No incremental samples are taken at microbial plant biostimulants – in order to preserve the sensitive content and maintain its properties intact avoiding possible contamination. Thus, the original package or container itself shall be considered a final sample.

## 4.2 Sampling plans

### 4.2.1 Determination of the number of sampling units which form the sampled portion

#### 4.2.1.1 General

The number of sampling units from which incremental samples are to be taken depends on the size of the batch.

#### 4.2.1.2 Plant biostimulant in packages or containers up to 50 kg or 50 l

The sampling unit is a package or container and the number of individual packages (containers) from which incremental samples shall be taken should be in accordance with Table 1. For packages smaller than 1 kg (1 l) each, it might be necessary to increase the number taken to ensure a sufficiently large combined sample.

**Table 1 — Number of individual packages (containers) from which incremental samples are to be taken**

Batch size	Minimum number of sampling units
4 or fewer packages	All packages
More than 4 up to 10 packages	4 packages
More than 10 up to 400 packages	The nearest whole number above the square root of the number of packages
More than 400 packages	20

#### 4.2.1.3 Plant biostimulant in packages or containers of more than 50 kg or 50 l and up to 1 000 kg or 1 000 l

Sampling units are mostly larger containers such as Intermediate Bulk Containers (IBCs). The number of sampling units from which incremental samples should be taken depends on the total mass present. The number of sampling units to be sampled should be in accordance with Table 2.

**Table 2 — Number of sampling units from which incremental samples are to be taken**

Batch size	Minimum number of sampling units
25 t (25 m <sup>3</sup> ) or less	10
More than 25 t (25 m <sup>3</sup> ) and up to 400 t (400 m <sup>3</sup> )	The nearest whole number above the square root of the number of packages
More than 400 t (400 m <sup>3</sup> )	40

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### 4.2.2 Identification of the sampling units to be sampled

Identify the packages in the batch or sampled portion consecutively and, by using a source of random numbers, select the packages from which incremental samples are to be taken and mark them.

For microbial plant biostimulants – identify the packages in the batch or sampled portion consecutively and, using a source of random numbers, select five packages which are to be taken as final samples.

### 4.2.3 Collection of incremental samples

#### 4.2.3.1 General

All incremental samples shall be of approximately the same mass or volume.

#### 4.2.3.2 Solid plant biostimulants

Collect the relevant number of incremental samples from each of the selected packages (sampling units – 4.2.2), using a divider (5.2 or 5.3), a spear (5.4) or by the manual method (5.5).

#### 4.2.3.3 Liquid plant biostimulants

Follow the appropriate procedure described in 5.6.

## 4.3 Quantitative data

### 4.3.1 Mass/volume of incremental samples

Incremental samples should normally be of at least 250 g (250 ml) each. For packages of 1 kg (1 l) or smaller, the entire contents are taken as the incremental sample.

### 4.3.2 Mass/volume of combined/reduced samples

Combine and mix all the collected incremental samples. When necessary, reduce the combined sample as described in Clause 5, so that the mass/volume of reduced samples for chemical or biological testing is at least 2 kg (2 l) and for physical testing at least 4 times the maximum amount required for the physical test method.

### 4.3.3 Mass/volume of final sample

The mass of each final sample for chemical or biological analysis shall be at least 500 g (500 ml). For physical testing the mass is dependent on the test(s) to be carried out.

## 5 Incremental sampling methods

### 5.1 General

Packages of solid plant biostimulants may be sampled by a process of reduction (see 5.2 and 5.3), starting with the total contents of the package, or by spear sampling (see 5.4.) from the selected packages but the latter only when the product is homogenous. The packages (including IBCs) may be sampled by emptying the contents as in the method described in 5.5.

Containers up to 20 l of liquid plant biostimulants may be sampled by a process of pouring into collecting vessel immediately after homogenization. All containers may be sampled by a process of filling of tube, sucking by sampling pump or by sampling at source.

The sampling apparatus shall be clean, dry and inert (i.e. fabricated of materials that will not affect the characteristics of the plant biostimulant to be sampled).

All sampling operations should be carried out in such a way as to minimize changes to sample properties, e.g. moisture content.